

RECOGNITION CHARACTERS AND DISTRIBUTION RECORDS FOR
SPECIES OF *CONOTRACHELUS* (COLEOPTERA: CURCULIONIDAE)
THAT DAMAGE AVOCADO FRUITS IN MEXICO
AND CENTRAL AMERICA

DONALD R. WHITEHEAD

Systematic Entomology Laboratory, IIBIII, Agric. Res., Sci. and Educ.
Admin., USDA, % U.S. National Museum, Washington, D.C. 20560.

Abstract.—Three species of *Conotrachelus* are known or suspected pests of commercially grown avocado fruits in Mexico and Central America: *C. aguacatae* Barber, *C. perseae* Barber and *C. serpentinus* (Klug). These species form part of a poorly known species group. Diagnoses and keys are given for their recognition, and distribution records are summarized.

In recent years, some concern has arisen about importation of avocado fruits into the United States, and field surveys have been made in Mexico to locate possible pest-free areas. Three species of *Conotrachelus* Schoenherr appear to damage commercially grown avocado fruits in Central America, and at least two are of economic importance (Garcia Arellano, 1975). When Barber (1919, 1923) published his comments on these species, their geographic distributions seemed to be allopatric. However, all three are now known to occur in central Mexico. Therefore, diagnostic characters are given for their recognition, and distribution records are summarized.

Specimens of at least a dozen other *Conotrachelus* species, most as yet undetermined, have been submitted as a result of these surveys. However, these species are not closely related to the pest species discussed here, and I have no information to implicate them as avocado pests.

I thank Mike Shannon (APHIS, USDA) for pertinent information, and I thank Wayne Clark (Auburn University), and F. C. Thompson and R. W. Hodges (Systematic Entomology Laboratory), for constructive criticism.

RECOGNITION CHARACTERS

Adults of the avocado pests trace to "group r'" in Champion's (1904) key to Central American *Conotrachelus*. Members of this group are distinguished from other *Conotrachelus* by the following diagnosis: Mesosternum and anterior part of metasternum depressed along midline but not forming part of rostral canal, mesosternum not conspicuously binodose; elytra with alternate intervals costate, costae of intervals 3&5 evanescent in anterior $\frac{1}{3}$ or $\frac{1}{2}$, costae of intervals 7&9 entire; femora clavate, unidentate ventrally.

Group *r'* includes *C. conicicollis* Champion 1904, *C. incanus* Champion 1904, *C. octocostatus* Champion 1925, *C. sulcipectus* Champion 1904, several apparently undescribed forms, and the avocado pests discussed here. This paper is intended only to facilitate recognition of the avocado pests, as I have seen insufficient material of the other species to justify a revision of this poorly known complex. The three pest species are distinguished from other members of the group by the following diagnosis: Elytra narrow (width/length = 0.64–0.72), widest at humeri, strongly converging posteriad toward apex; pronotal punctures coarse, nearly uniform, interstices lacking smaller punctures; elytral vestiture coarse, long, largely fulvous or brownish (not uniformly pale); strial punctures each with slender, elongate, white scale; beak not more than 1.5 (male) or 1.8 (female) times longer than pronotum; front coxae clearly separated, front and middle coxae with vestiture recumbent. See Barber (1923) for illustrations of male genitalia.

KEY TO THE AVOCADO-EATING SPECIES OF *CONOTRACHELUS*

1. Abdominal sterna 3&4 coarsely punctate; pronotum strongly transverse (length/width less than 0.80), strongly constricted in front, conical; beak with antennal insertion near apical 0.30–0.35 in male, near apical 0.40–0.45 in female; front coxae narrowly separated. Florida, West Indies, Mexico, Central America, South America *serpentinus* (Klug)
- Abdominal sterna 3&4 finely punctate; pronotum less transverse (length/width more than 0.80), strongly constricted in front or not, conical or subconical; beak with antennal insertion at or beyond apical 0.25 in male, at or beyond apical 0.40 in female; front coxae widely separated. Mexico, Central America 2
2. Beak with antennal insertion near apical 0.18–0.20 in male, near apical 0.25 in female; uncus of male front tibia simple, acute; uncus of male hind tibia short, dentate; pronotum feebly constricted in front, conical. Mexico *aguacatae* Barber
- Beak with antennal insertion near apical 0.25 in male, near apical 0.35–0.40 in female; uncus of male front tibia dilated, truncate or bifid; uncus of male hind tibia short, blunt, recurved; pronotum strongly constricted in front, conical or subconical. Mexico to Costa Rica. *perseae* Barber

Conotrachelus aguacatae Barber 1923. This species damages avocado in central Mexico. MEXICO: Coahuila (Ciudad Acuña, Saltillo), Jalisco (Huascata), Michoacan (Uruapan), Nayarit (Tepic), Queretaro (Queretaro).

Conotrachelus perseae Barber 1923. Described as a pest of avocado in Guatemala, this species is now known to range from central Mexico (see also García Arellano, 1975) southward to Costa Rica. Costa Rican speci-

mens differ by having a more conical pronotum, male tibial uncus truncate rather than bifid, beak in both sexes relatively slender and elongate, and male phallus more broadly rounded apically—characters here regarded as geographic variation. Study of additional material may indicate that this form is a distinct species. MEXICO: Michoacan (Uruapan). GUATEMALA: Alta Verapaz (Coban), Guatemala (Guatemala). HONDURAS: Morazan (Zamorano). COSTA RICA: San Jose (San Jose, San Pedro de Montes de Oca).

Conotrachelus serpentinus (Klug) 1829. [*Balaninus serpentinus* Klug 1829 = *Conotrachelus serpentinus* Germar of Boheman 1837, a secondary usage according to Kuschel (1955); *C. ventralis* LeConte 1878 = *C. serpentinus*, according to Barber (1919) and other authors.] Barber (1919) suggested that distribution records cited by Champion (1904) might have been based on misidentifications, but Champion's description of this species and the records given here suggest that his identifications and distribution records were correct. Not generally regarded as a pest of commercial avocado, this species attacks various native species of *Persea* (Barber, 1919); however, the Queretaro specimen cited below was taken from avocado along with specimens of *C. aguacatae*. Therefore, this species is here regarded as at least a potential avocado pest. In addition to the records cited from Mexico, I have seen specimens from Florida, the Bahamas, Cuba, and Haiti; see Champion (1904) for additional distribution records. MEXICO: Queretaro (Queretaro), Veracruz (Tampico), Yucatan (Yaxcopoil).

There probably are many additional *Persea*-eating *Conotrachelus* species belonging to this complex. I have seen three apparently undescribed ones from Central America that closely resemble *C. perseae*. One female (Turrialba, Costa Rica) differs by having a very long beak, about 2.0 times longer than the pronotum and extended nearly to the apex of ventrite 1. Two females (San Jose, Costa Rica) have the front coxae nearly contiguous, the front and middle coxae with tufted, suberect vestiture. Two males (Barro Colorado Island, Panama, and Hermitage Res., Jamaica) have the front coxae narrowly separated, front and middle mucrones normal, and the hind tibial mucrone greatly enlarged.

LITERATURE CITED

- Barber, H. S. 1919. Avocado seed weevils. Proc. Entomol. Soc. Wash. 21:53-60.
 ———. 1923. Two new *Conotrachelus* from tropical fruits (Coleoptera, Curculionidae). Proc. Entomol. Soc. Wash. 25:182-185.
 Champion, G. C. 1904. Rhynchophora, Curculionidae. Vol. 4, part 4, pp. 337-448. In Godman, F. D. and O. Salvin. Biologia Centrali-Americana.
 Garcia Arellano, P. 1975. Clave para la identificacion de las larvas barrenadoras del hueso del aguacate en Mexico. Folia Entomol. Mex. 31-32:127-131.
 Kuschel, G. 1955. Nuevas sinonimias y anotaciones sobre Curculionoidea (Coleoptera). Rev. Chilena Entomol. 4:261-312.